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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/645,607

08/22/2003

Pieder Joerg

004501-737

9473

21839

7590

07/01/2005

BUCHANAN INGERSOLL PC
(INCLUDING BURNS, DOANE, SWECKER & MATHIS)
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EXAMINER

MAI, ANH T

ART UNIT

PAPER NUMBER

2832

DATE MAILED: 07/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/645,607

Applicant(s)

JOERG ET AL.

Examiner

Anh T. Mai

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-23 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 8/22/03.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Claim Objections

1. Claims 22-23 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. There is no additional limitation of the signal transformer in the parent claim 1.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.
3. Claims 1-3, 20-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chamberlin [3990030].

Chamberlain discloses a transformer having a primary limb 32, first secondary limb 36, primary winding 42 enclosing primary limb and secondary winding 38 enclosing 1st secondary limb; primary limb 32 being connected to 1st secondary limb 36 wherein 2n+1 additional secondary limbs are provided [n=0],

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an additional secondary limb 34 is connected to the primary limb [see figure 5] with secondary winding 44 being wound. Chamberlain discloses the claimed invention except for the control winding located on secondary limb. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have control winding on the secondary limb, since it has been held that rearranging parts of an invention involves only routine skill in the art. *In re Japikse*, 86 USPQ 70.

With respect to claim 2, there is the same number of secondary limbs on both sides of primary limb.

With respect to claim 3, when $n=0$, this distance between primary limb and 1st secondary limb and the distance between the primary limb and respective secondary limb are the same [see fig 5].

With respect to claims 20-21, it would have been obvious for the signal transformer to be operated by driving signals [i.e. signal function generator] to the windings.

With respect to claims 22-23, it is inherent that there exists a signal function generator coupled to the driver circuit/signal transformer to provide an input (i.e. terminals 24, 26) as shown in figure 1 of the Chamberlain reference. Further, the driver circuit/signal transformer is seen as an intermediate device for providing an output signal derived from the input signal (i.e. terminals 18, 35). Therefore, it would have been obvious to have some devices (e.g., drivable

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power semiconductor switch or the likes) connected to the output of the driver circuit/signal transformer.

4. Claims 4-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chamberlin in view of Usui [6741155].

Chamberlain discloses the invention as claimed as cited above except for the primary winding is designed as conductor track of primary winding of printed circuit board. Usui discloses the application of conductor tracks 14 as of the primary winding on the PBC of insulation substrate 14 provided with insertion hole 14a for the core [figure 6]. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use winding tracks on the PCB as taught by Usui to Chamberlin. The motivation would have been to ensure the insulation and creepage distance between the windings. Therefore, it would have been obvious to combine Usui with Chamberlin.

With respect to claims 5, 9, the conductor track of the primary winding PCB surrounded by an insulating layer 17 [figure 5].

With respect to claim 6, the primary winding PCB having an opening in the center for the insertion of the core limb [figure 6].

With respect to claim 7, conductor track extends around the opening in the board propagation direction of the PCB.

With respect to claim 8, the primary winding PCB having an opening in the center for the insertion of the core limb [figure 6].

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With respect to claim 10, the secondary winding PCB having an opening in the center for the insertion of the core limb [figure 6].

5. Claims 12-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chamberlin in view of Ferenez et al. [2004/0032313].

With respect to claims 12, 15, 16; Chamberlin discloses the invention as claimed as cited above except for the winding are as conductor track of a multilayer PCB. Ferenez discloses a transformer having built as tracings in a multilayer PCB [abstract; figure 1]. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use multilayer PC board as taught by Ferenez to Chamberlin. The motivation would have been to facilitate the primary or secondary winding by any number of turns [see abstract]. Therefore, it would have been obvious to combine Ferenez with Chamberlin.

With respect to claims 13, 17, opening 130a for leading through core limb 472 [figure 4].

With respect to claims 14, 18, conductor track extending around the opening [figure 4].

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. See PTO-892 form.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anh T. Mai whose telephone number is 571-272-1995. The examiner can normally be reached on 5/4/9 Schedule.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Elvin Enad can be reached on 571-272-1990. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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ANH MAI
PRIMARY EXAMINER